

## **APPENDIX H**

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# **Ronan Regional Air Quality Analysis**

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**US 93 Supplemental Environmental Impact Statement  
Ninepipe/Ronan Improvement Project  
Lake County, Montana**

NH-F 5-1(9)6F  
Control Number B744

**Ronan Regional Air Quality Analysis**

Background

The 1996 US 93 Evaro-Polson Final Environmental Statement and Section 4(f) Evaluation contains a Polson and Ronan Conformity Determination. A finding of conformity was made Federal Highway Administration (FHWA) on January 31, 1996, based on the analysis contained in a November 24, 1995, Montana Department of Transportation (MDT) memorandum.

In addition to a regional emissions analysis, the conformity rule requires a project-level hotspot analysis for PM<sub>10</sub>, in order to determine whether localized violations of the PM<sub>10</sub> standard are likely. This document includes a hot-spot analysis and a revised conformity analysis based on the current preliminary preferred alternate for improvement of US 93 through Ronan. The City of Polson is not included in this analysis because the current project does not include Polson. Polson will be included in a separate, future project.

Acronyms Used

ADT – average daily traffic

DHV – design hour volume

DVMT – daily vehicle miles of travel

PM<sub>10</sub> – particulate matter of 10 microns or smaller

PPA – preliminary preferred alternative

VMT – vehicle miles of travel

Air Quality (PM<sub>10</sub>) Analysis

A series of observations and calculations have been used in this analysis. Collector and local street VMT have been projected using data from Columbia Falls and Missoula. Permanent traffic counters and PM<sub>10</sub> monitors exist in both locations.

The traffic data from the Traffic Operational and Safety Report was also used to estimate collector and local street VMT. US 93 VMT was calculated directly from these data.

#### Step 1: Calculate 2000 Ronan Collector and Local VMT Based on Columbia Falls VMT

This information was calculated by the Montana Department of Transportation from three permanent traffic counters in Columbia Falls and prorated to Ronan by population.

	2000 Population	2000 Collector DVMT	2000 Local DVMT
Columbia Falls	3645	40953	30255
Ronan	1812	20359	15040

#### Step 2: Adjust to 2025 VMT

25-year growth factors assumed from the recent Missoula conformity analysis.

	2000 Ronan VMT	25-year Growth Factor	2025 Ronan VMT
Collector	20359	1.37	27891
Local	15040	1.52	22861

Step 1 indicates each person living in Ronan would travel about 19.5 miles per day on collector and local streets. This number seems high although there is considerable commerce from outside the city limits and schools that attract traffic.

The VMT for collectors and local roads and the associated emissions are constants for the conformity analysis. Their inherent accuracy is not a factor in the results.

#### Step 3: Calculate Ronan 2025 Collector and Local Emissions

Emission rates are from the recent Missoula conformity analysis. Road dust rates are the “unwashed sand” rates, so they should be appropriate for Ronan as well.

	Collectors	Locals
Emission rates	lb/VMT	lb/VMT
Road dust	0.02336	0.0304
Exhaust/brake/tire wear	0.00001	0.00001
Total lb/VMT	0.02337	0.03041
Total emissions lb/day	651.8	695.2

In addition, a 1991 air quality analysis for Polson and Ronan included an estimate for unpaved streets. The 1990 estimate was adjusted upward to reflect the 2025 travel activity using the growth rate for local streets in Missoula. Jeff Houk from FHWA Denver Resource Center made this calculation and determined:

2025 PM10 from unpaved Ronan streets = 249.6 lb/day

#### Step 4: Calculate US 93 Emissions in 2025

Data included in Table B-14 Design Volumes and Turning Movement Percentages for Intersections in Cities and Towns in the US 93 Corridor was used to compute 2025 DVM.

#### Assumptions:

2024 DHV = 10% of 2024 ADT

Growth rate for US 93 = 2.8% per year

#### Then:

2025 ADT = 10(2024 DHV x 1.028)

The November 24, 1995, Conformity Determination references how the emission calculation was done at that time. This same method is followed here.

The current Preliminary Preferred Alternate (PPA) is a couplet through Ronan. The PPA and all other alternates would improve the existing highway by replacing existing curbs, gutters, paved shoulders, and approaches. The PPA adds these improvements to 1<sup>st</sup> Avenue SW. Curbs, gutters, paved shoulders, and approaches will be added in these areas:

South Corporate Limits to Garfield Street	0.50 mile
SB Couplet Round Butte Rd to Garfield	0.53 mile
Round Butte Rd to North Corporate Limits	0.25 mile

These improvements will substantially reduce carry-on or background emissions caused by vehicles tracking road dust from adjacent unpaved surfaces onto the highway.

Previous regional analyses and conformity determinations in Kalispell and Whitefish have estimated a conservative 60% reduction in background emissions attributable to similar design features based on information provided by the Montana Department of Environmental Quality (formerly the Montana Department of Health and Environmental Sciences). Emissions (based on 0.02025 lb/VMT from 11/24/95 Conformity Analysis) and expected reductions would be:

	2025 DVM	No-Build lb/day	Build lb/day
SCL to Garfield Street	15850	321.0	192.6
SB Couplet	8308	168.2	100.9
NB Couplet (existing US 93)	7687	155.7	155.7
Round Butte Rd to NCL	6630	134.3	80.6
Total emissions		779.2	529.8

#### Step 5: Assemble Regional Emissions Analysis

	No-Build	Build PPV
US 93	779.2	529.8
Collectors	651.8	651.8
Locals	695.2	695.2
PM10 Unpaved Roads	249.6	249.6
Total emissions lb/day	2375.8	2126.4

#### Qualitative Hot Spot Analysis

Under the conformity rule, until the Environmental Protection Agency issues a quantitative PM10 hot spot model, a qualitative analysis is required. In the analysis above, traffic volumes from the project were compared to traffic volumes in other locations in Montana where PM10 air quality monitors are located.

The PM10 monitor in Columbia Falls is exposed to roadway emissions from both MT-486 and US 2, which have higher combined traffic volumes than the 2025 estimates for US 93 in the Ronan area. Likewise, the PM10 monitor in Missoula is exposed to traffic on several urban arterial streets and I-90, with higher projected volumes than those projected for Ronan.

Since neither Columbia Falls nor Missoula has violated the PM10 standard in recent years, we would not expect the 2025 volumes in Ronan to result in a violation.

In addition, the project includes commitments for design elements that will reduce PM10 emissions, including surfacing shoulders, adding curbs and gutters, and consolidating and surfacing gravel and dirt approaches. The PPA will pave 1<sup>st</sup> Avenue SW, currently with minimal pavement, as the southbound couplet. These commitments for design improvements are enforceable under section 93.125 of the conformity rule and the Administrative Rules of Montana (ARM 17.8.1402).

### Results of the Regional Emission Analysis

Building the Preliminary Preferred Alternate of a couplet through Ronan will result in a net reduction of 249.4 pounds per day in PM10 emissions compared to the no-build.

If any of the improve existing alternates are chosen then the net reduction in PM10 emissions per day would be 182.1 pounds.

### Conclusion

This regional analysis has shown that the Preliminary Preferred Alternative will result in a net reduction in PM10 emissions compared to the no-build alternative. The action alternative therefore fulfills the requirement for conformity determination.